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(54) Improvements in or relating to radiation lamps for the human body

(57) A radiation lamp for use in irradiating the human body comprises an infra-red source disposed in a casing 4. The infra-red source comprises at least one xenon high-pressure lamp 1 behind which a

reflector 2 is disposed. The reflector 2 directs radiation from the lamp 1 through an infra-red filter 3, which has a spectral working range of 800 to 1200 nm. Thus, the amount of infra-red radiation of longer wave-lengths is reduced, permitting longer exposure of the body to radiation without burning.

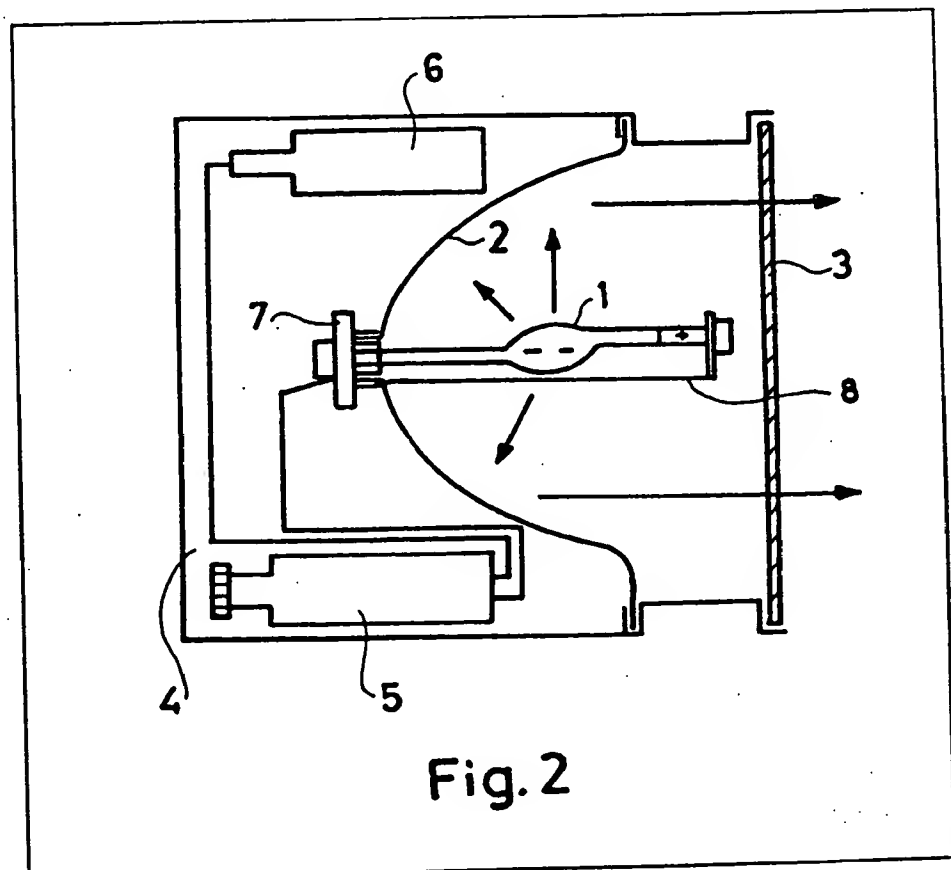


Fig. 2

The drawings originally filed were informal and the print here reproduced is taken from a later filed formal copy.

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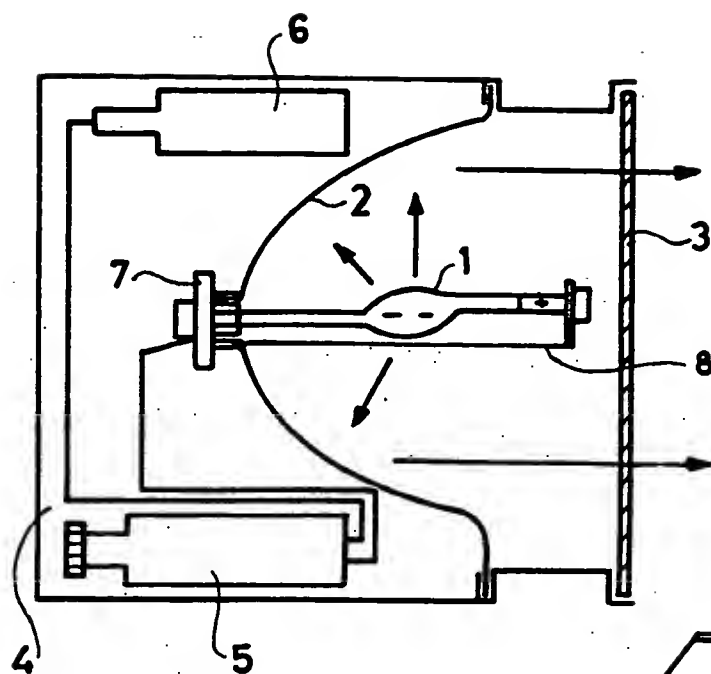
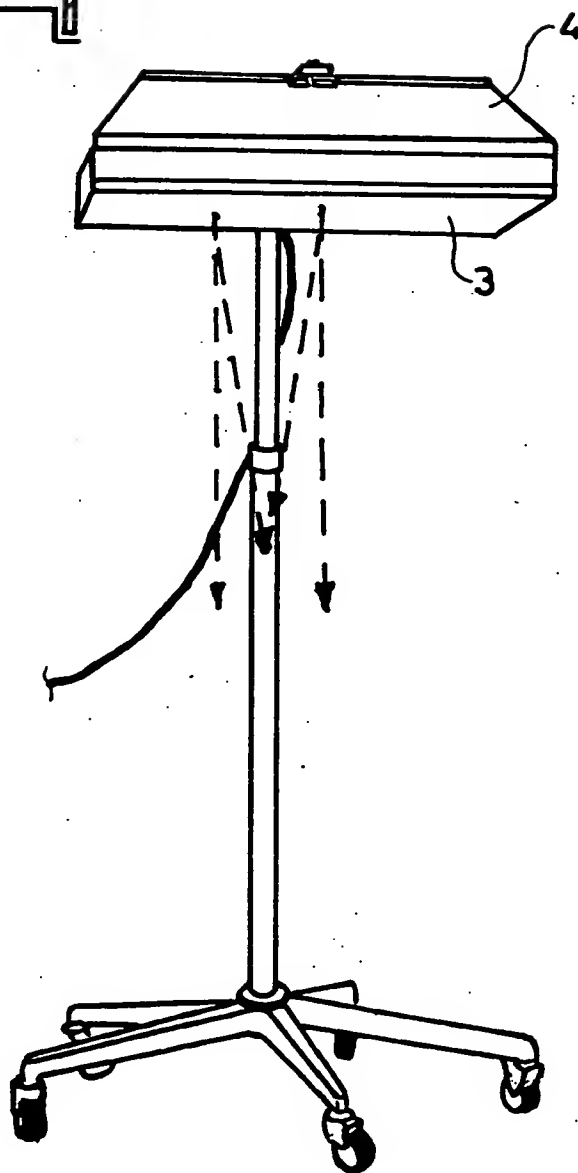


Fig. 2

Fig. 1



SPECIFICATION

Improvements in or relating to radiation lamps for the human body

The invention relates to a radiation lamp for the human body comprising an infra-red source disposed in a casing.

It is known to irradiate the human body with infra-red light for the purpose of a curvative effect. Formerly it was customary to use radiation lamps for this purpose which emit long-wave infra-red rays together with short-wave infra-red rays. By the action of the long-wave rays the outer skin or epidermis of the human body is heated even after a brief irradiation of the latter. Irradiation of longer duration leads therefore to burning. For this reason, when using conventional radiation lamps, a patient can only be exposed to irradiation for a relatively short time. On the other hand, however, it is necessary also to expose parts of the body lying deeper under the skin to a longer irradiation, in order to produce a curative effect by the action of the rays and the heat generated by them.

According to the invention there is provided a radiation lamp for the human body, comprising an infra-red source disposed in a casing, the infra-red source comprising at least one xenon high-pressure lamp behind which a reflector is disposed so as to direct the radiation through an infra-red filter, which has a spectral working range of substantially 800 to substantially 1200 nm (nanometres). Such a radiation lamp allows areas lying beneath the outer skin of the human body to be irradiated for a relatively long duration, without there being any substantial danger of burning the skin.

Such a filter makes it possible for the skin not to be effected by the relatively long-wave infra-red rays and the ultra-violet rays, while the short-wave infra-red rays which are not absorbed by the skin but penetrate it very extensively are able to penetrate the body to a great extent, so that they are available with their energy content for curative purposes.

Observations have shown that in this way rheumatic diseases, wounds, inflammation and accident injuries such as contusions and compressions may advantageously be treated by irradiation of relatively long duration. In addition, such a radiation lamp is suitable for treating carcinomas. This is due to the fact that, by using a suitable reflector, a point-wise irradiation may be attained which is effective up to several centimetres beneath the surface of the skin.

The xenon high-pressure lamp may be in the form of a product which is standard in the trade, for example a lamp as has been used previously for technical purposes such as infra-red floodlights or the like. It is possible to use two or more lamps disposed side by side either in one reflector or in separate reflectors, the power being preferably of an order of magnitude of approximately 150 W (watts).

The filter may be an inked-in hardened glass filter or a so-called cut-on filter, by which

irradiation up to a wave-length of 800 nm (1 nanometre = 1 millionth of a millimetre) is to a great extent filtered out. Such known filters have for example a transmission of 1% in the case of 810 nm; 30% in the case of 840 nm; 50% in the case of 850 nm; 90% in the case of 875 nm and 99.5% in the case of 925 nm, so that only relatively short-wave infra-red light passes through the filter.

The invention will be further described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 shows a radiation lamp in a perspective view; and

Figure 2 is a section through the casing of the radiation lamp of Figure 1.

The radiation lamp illustrated in the drawings is disposed on a stand which has feet provided with casters to allow it to be moved as appropriate.

The radiation lamp has two adjacently disposed xenon high-pressure lamps 1 which are each mounted in a reflector 2, by means of which the rays are emitted substantially parallel from a casing 4 as from a search-light.

A hardened glass filter 3 is placed in front of the xenon high-pressure lamp 1, which has a capacity preferably of 150 W (watts). This filter is formed so that it filters out radiation of up to 800 nm (nanometres) to a very great extent, while rays of a wavelength of less than 1200 nm are largely let through.

An ignition device 5, which is connected to an ignition coil 6 and a holder 7 of the high-pressure lamp 1, is disposed in the casing 4 in order to operate the high-pressure lamp 1 illustrated in Figure 2, next to which a further similar high-pressure lamp is disposed. The high-pressure lamp 1 is also held at its front end by a support 8 of the holder 7.

The filter 3 has a thickness of about 3mm, and comprises an inked-in hardened glass disc.

Furthermore the filter is preferably made such that it filters out radiation in the range of over 1200 nm since such rays do not contribute to the desired curative effect.

Radiation in the range of 850 and 900 nm has been shown to be most favourable for curative purposes. There is also no danger of overheating the filter glass with such radiation.

At least one of the two lamps or the parabolic reflectors 2 is preferably adjustably mounted in order to be able to focus all the rays when using two lamps, so that it is possible to set the distance of the focus from the filter according to requirements by adjusting one parabolic reflector.

The arrangement in which both lamps or parabolic reflectors are adjustable is shown diagrammatically with broken lines in Figure 1 of the drawing.

CLAIMS

1. A radiation lamp for the human body, comprising an infra-red source disposed in a casing, the infra-red source comprising at least one xenon high-pressure lamp behind which a

reflector is disposed so as to direct the radiation through an infra-red filter which has a spectral working range of substantially 800 to substantially 1200 nm (nanometres).

- 5 2. A radiation lamp as claimed in Claim 1, in which the filter has a spectral working range of 800 to 1000 nm (nanometres).

- 10 3. A radiation lamp as claimed in claim 1 or 2 in which the radiation source comprises two xenon high-pressure lamps disposed side by side and each having a capacity of 150 W (watts).

4. A radiation lamp as claimed in any one of the preceding claims, in which the filter has a

thickness of 2.5 to 4 mm.

- 15 5. A radiation lamp as claimed in any one of the preceding claims, in which an ignition coil and an ignition device for the or each xenon lamp are disposed in the casing behind the reflector.

- 20 6. A radiation lamp as claimed in any one of the preceding claims in which the radiation source comprises two lamps with reflectors, at least one of which is adjustable.

- 25 7. A radiation lamp for the human body, substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.